PC Code) 061601
File Symbol- 74530-UI

UNITED STATES ENVIRONMENTAL AGENCY PROTECTION
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY AND
POLLUTION PREVENTION

November 18, 2010

MEMORANDUM

Subject:

Name of Pesticide Product:	**Helmquat 3SL**
EPA File Symbol:	74530-UI
DP Barcode:	379652
Decision No.:	435350
PC Code:	061601
Action Code:	R310

From: Masih Hashim, Team Leader-Toxicology
Technical Review Branch
Registration Division (7505P)

Masih Hashim
Byron T. Backus
Nov. 18 2010

To: Hope Johnson, RM Team 25
Herbicide Branch
Registration Division (7505P)

Applicant: Helm Agro US, Inc.
Memphis, TN 38125

FORMULATION FROM LABEL:

Active Ingredient(s):	% by wt
Paraquat dichloride	43.8
Other Ingredient(s):	56.2
Total:	100.0

ACTION REQUESTED: The Risk Manager requests a review of the acute toxicity data, a six pack (MRIDs 48122103-08), submitted to support the application for a new product #74530-UI.

BACKGROUND: Helm Agro submits an application for a new end-use product, #74530-UI. According to the Registrant, the product's composition and its use directions are similar to the registered product #66222-130. However, the tox data is not the same as the referenced product, the tox profile has been modified in accordance with the six pack data generated at the Product Safety Laboratories, Dayton, NJ.

RECOMMENDATIONS:
The test material is identified as Paraquat dichloride monohydrate 42.8% which really equals to 40.0% a.i. (257.16 / 275.17). In this case TRB will accept the toxicity data. However, the CSF has to be approved by the Product Chemistry team.

The acute toxicity profile for #74530-UI is as follows:

Acute oral toxicity	III	acceptable	MRID 48122103
Acute dermal toxicity	IV	acceptable	MRID 48122104
Acute inhalation toxicity	I	acceptable	MRID 48122105
Primary eye irritation	I	acceptable	MRID 48122106
Primary skin irritation	III	acceptable	MRID 48122107
Dermal sensitization	neg.	acceptable	MRID 48122108

Label Review System

PRODUCT ID #: 074530-00048

PRODUCT NAME: Helmquat 3SL

PRECAUTIONARY STATEMENTS
SIGNAL WORD: DANGER POISON ☠

SPANISH SIGNAL WORD: PELIGRO
Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

Hazards to Humans and Domestic Animals:

Restricted Use Pesticide due to toxicity categories. For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

Fatal if inhaled. Corrosive. Causes irreversible eye damage .Harmful if swallowed. Harmful if absorbed through skin. Do not breathe spray mist. Remove and wash contaminated clothing before reuse. Do not get in eyes or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses). Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Avoid contact with skin, eyes or clothing. Wear long-sleeved shirt and long pants, socks, shoes, and gloves.

For handling activities, use a non-powered, NIOSH-approved air purifying cartridge respirator equipped with an organic-vapor (OV) removing cartridge plus an N-, R- or P-series filter, OR a non-powered air

purifying canister-type respirator equipped with an organic vapor canister that uses an N-, R-, or P-series air-purifying filter.

First Aid:

If swallowed:
-Call a poison control center or doctor immediately for treatment advice.
-Have person sip a glass of water if able to swallow.
-Do not induce vomiting unless told to by a poison control center or doctor.
-Do not give anything to an unconscious person.

If inhaled:
-Move the person to fresh air.
-If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
-Call a poison control center or doctor for further treatment advice.

If in eyes:
-Hold eye open and rinse slowly and gently with water for 15-20 minutes.
-Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.
-Call a poison control center or doctor for treatment advice.

If on skin:
-Take off contaminated clothing.
-Rinse skin immediately with plenty of water for 15-20 minutes.
-Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN: Note to PM/CRM/Registrant: The proposed label should contain a Note to Physician which addresses the category I Acute Inhalation Toxicity, Primary Eye Irritant toxicity. The following statements are suggested types of information that may be included, if applicable:
- technical information on symptomatology;
- use of supportive treatments to maintain life functions;
- medicine that will counteract the specific physiological effects of the pesticide;
- company telephone number to specific medical personnel who can provide specialized medical advice.

Have the product container or label with you when calling a poison control center or doctor or going for treatment

Reviewer: M. Hashim Date: November 7, 2010
Risk Manager (EPA): 25

STUDY TYPE: Acute Oral Toxicity – Rat ; OPPTS 870.1100; OECD 425

TEST MATERIAL: Helmquat 3SL (Paraquat dichloride monohydrate 42.8%), Batch #090564, dark green liquid pH 5.35

CITATION: Oley, S. D. (2010): Helmquat 3SL. Acute Oral Toxicity Study in Rats - Up and Down Method. Study Number 28287, January 27, 2010. Eurofins/Product Safety Laboratories, Dayton, New Jersey. MRID 48122103.Unpublished

SPONSOR: Helm Agro US, Inc., Memphis, TN 39125

EXECUTIVE SUMMARY: In an acute oral toxicity study (MRID 48122103) an initial limit dose of Helmquat 3SL was administered at 5000 mg/kg in a female rat. The animal died. The study proceeded to the main test using default starting level of 175 mg/kg with increasing doses Animals used were all female Sprague-Dawley derived albino rats, source: Ace Animals,10-11 wks old wt.175-218g. These animals were observed for 14 days for toxicity and mortality. Body weights were recorded prior to the dose administrations, then on day 7 and 14. All animals were euthanized and necropsied at termination.

One animal dosed at 5000 mg/kg died within 3 hours of test administration. Prior to death the animal was hypoactive, had piloerection and showed hunched posture. Necropsy showed discolored intestine. At 1750 mg/kg all 3 animals died within one day. These animals were hypoactive and had piloerection and /or facial staining and hunched posture. Decedents at necropsy showed discoloration of intestines / red lungs and distended stomach. Animals dosed at 175, and 550 mg/kg survived with no obvious abnormal signs. There were no gross lesions at necropsy.

LD_{50} Females for Helmquat 3SL is estimated to be 1030 mg/kg bw

Based on the oral LD_{50}, Helmquat 3SL is in EPA Toxicity Category III.

This study is classified as acceptable. It does satisfy the guideline requirements for an acute oral study (OPPTS 870.1100; OECD 425).

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

RESULTS and DISCUSSION:

AOT425statpgm (Version: 1.0) Test Results and Recommendations
Acute Oral Toxicity (OECD Test Guideline 425) Statistical Program

Date/Time: Friday, November 05, 2010, 3:43:36 PM
Data file name: work.dat
Last modified: 11/5/2010 3:43:34 PM

Test/Substance: Enter test description.
Test type: Limit Test
Limit dose (mg/kg): 5000
Assumed LD50 (mg/kg): Default
Assumed sigma (mg/kg): 0.5

DATA:

Test Seq.	Animal ID	Dose (mg/kg)	Short-term Result	Long-term Result
1	3101	5000	X	X

(X = Died, O = Survived)

Dose Recommendation: Stop the limit test and conduct a main test at 175 mg/kg.

SUMMARY OF LONG-TERM RESULTS:

Dose	O	X	Total
5000	0	1	1
All Doses	0	1	1

AOT425statpgm (Version: 1.0) Test Results and Recommendations
Acute Oral Toxicity (OECD Test Guideline 425) Statistical Program

Date/Time: Friday, November 05, 2010, 3:40:23 PM
Data file name: HELM 175.dat
Last modified: 11/5/2010 3:40:19 PM

Test/Substance: Enter test description.
Test type: Main Test
Limit dose (mg/kg): 5000
Assumed LD50 (mg/kg): Default
Assumed sigma (mg/kg): 0.5

DATA:

Test Seq.	Animal ID	Dose (mg/kg)	Short-term Result	Long-term Result
1	3102	175	O	O
2	3103	550	O	O
3	3104	1750	X	X
4	3105	550	O	O
5	3106	1750	X	X
6	3107	550	O	O
7	3108	1750	X	X

(X = Died, O = Survived)

Dose Recommendation: The main test is complete.

Stopping criteria met: 5 reversals in 6 tests.

SUMMARY OF LONG-TERM RESULTS:

Dose	O	X	Total
175	1	0	1
550	3	0	3
1750	0	3	3
All Doses	4	3	7

Statistical Estimate based on long term outcomes:

Estimated LD50 = 1030 (Based on an assumed sigma of 0.5).
Approximate 95% confidence interval is 550 to 1750.

A. Mortality: There were several deaths on the study (see below)..

B. Clinical observations : One animal dosed at 5000 mg/kg died within 3 hours of test administration. Prior to death the animal was hypoactive, had piloerection and showed hunched posture. Necropsy showed discolored intestine. At 1750 mg/kg all 3 animals died within one day. These animals were hypoactive and had piloerection and /or facial staining and hunched posture. Animals dosed at 175, and 550 mg/kg survived with no obvious abnormal signs. There were no gross lesions at necropsy.

C. Necropsy: One animal dosed at 5000 mg/kg. Necropsy showed discolored intestine. At 1750 mg/kg all 3 animals at necropsy showed discoloration of intestines / red lungs and distended stomach. Animals at 175, and 550 lived through the study and showed no gross lesions at necropsy.

C. Reviewer's conclusions: In agreement with the study author, the LD50 for this test in female rats = 1030 mg/kg. This places Helmquat 3SL in EPA Tox Category III.

Reviewer: M. Hashim Date: Nov 8, 2010
Risk Manager (EPA): 25

STUDY TYPE: Acute Dermal Toxicity – Rat; OPPTS 870.1200; OECD 402

TEST MATERIAL: Helmquat 3SL (Paraquat dichloride monohydrate 42.8%), Batch #090564, dark green liquid pH 5.35

CITATION: Oley, S. D (2010): Helmquat 3SL Acute Dermal Toxicity Study in Rats. Study Number 28288, January 27, 2010. Eurofins/Product Safety Laboratories, Dayton, New Jersey. MRID 48122104.Unpublished

SPONSOR: Helm Agro US, Inc., Memphis, TN 39125

EXECUTIVE SUMMARY: In an acute dermal toxicity study (MRID 48122104), five male and five female young adult, Sprague-Dawley derived, albino rats, 8-9 weeks old (source, Ace Animals, Boyertown, PA, males: 232-276g, females: 180-211g) were dermally exposed to Helmquat 3SL at a limit dose of 5000 mg/kg bw for 24 hours. The test material (as supplied) was applied to the clipped application site on the dorsal trunk, measuring approximately 2 inches by 3 inches (~ 10% of the body surface area), using a 4-ply gauze pad secured with 3-inch Durapore tape which was wrapped around the trunk. The animals were observed for 14 days.

All animals survived the test. There was dermal irritation in all animals during day 1-14 at the application site. Except for the dermal lesion, all animals were healthy and gained weight during the remaining of the study. There were no abnormal gross findings at necropsy.

LD_{50} Males > 5000 mg/kg bw
LD_{50} Females > 5000 mg/kg bw
LD_{50} Combined > 5000 mg/kg bw

Based on the dermal LD_{50}, Helmquat 3SL is in Toxicity Category IV.

This study is classified as acceptable. It does satisfy the guideline requirements for an acute dermal study (OPPTS 870.1200; OECD 402) in the rat.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

RESULTS and DISCUSSION:

Dose (mg/kg bw)	Mortality/Number Tested		
	Males	Females	Combined
5000	0/5	0/5	0/10

A. Mortality: There were no deaths or moribund sacrifices.

B. Clinical observations: All animals survived the test. There was (dermal) irritation in all animals during day 1-14 at the application site. Except for the dermal lesion, all animals were healthy and gained weight during the remaining of the study.

C. Gross necropsy: There were no abnormal gross necropsy findings.

D. Reviewer's conclusions: In agreement with the study author, the acute dermal LD_{50} for males, females, and combined sexes is greater than 5000 mg/kg bw. This places the test material in EPA Toxicity Category IV.

Reviewer: M. Hashim Date: November 4, 2010
Risk Manager (EPA): 25

STUDY TYPE: Acute Inhalation Toxicity Study in Rats; OPPTS 870.1300

TEST MATERIAL: Helmquat 3SL (Paraquat dichloride monohydrate 42.8%), Batch #090564, dark green liquid pH 5.35

CITATION: Oley, S.D. 2010. Helmquat 3SL: Inhalation Toxicity Study in Rats (Limit test). Study Number 28289. Eurofins/Product Safety Laboratories, Dayton, New Jersey. Feb 9, 2010. MRID 48122105 Unpublished

SPONSOR: Helm Agro US, Inc., Memphis, TN 39125

EXECUTIVE SUMMARY: In an acute inhalation toxicity study (MRID 48122105), 3 groups of 5 male and 5 female Sprague-Dawley albino rats (8-10 weeks old, from Ace Animals, Boyertown, PA, wt. males: 269-334g , females: 187-235g). The groups were based on pre-trials and received nose only exposure to Helmquat 3SL at 0.052, 0.52 and 2.02 mg/L for 4 hours. The MMADs were 2.3, 2.1 and 2.4 respectively. The animals were observed for 14 days post exposure.

At 0.052 mg/L all animals died within four days after exposure of the test material (0.052 mg/ml). Animals appeared healthy immediately following exposure. Then on day 1-3 there was abnormal respiration, hypoactivity/ facial staining. On day 4 all animals were found dead. Necropsy showed discoloration of intestines, lungs and liver. At 0.52 mg/L, all animals died within two days after exposure. Animals appeared healthy after immediate exposure, however, all animals were found dead on day 2. Necropsy showed discoloration of lungs, liver and intestines. At 2.02 mg/L all animals died within one day after exposure. Three rats showed irregular respiration and three appeared hypoactive. All animals were dead on day 1. Necropsy revealed discoloration of liver, lungs and intestines.

LC_{50} Males and/or Females is <0.052 mg/kg (all animals died).

Based on the $LC_{50,}$ Helmquat 3SL is in EPA Toxicity Category I.

This study is classified as acceptable. It does satisfy the guideline requirements for an acute inhalation study (OPPTS 870.1300; OECD 403) in the rat.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

RESULTS and DISCUSSION:

Gravimetric Conc. (mg/L)	MMAD µm	GSD	Mortality/Number Tested		
			Males	Females	Combined
0.052 0.52 2.02	2.3 2.0 2.4	1.79 1.98 2.15	5/5 5/5 5/5	5/5 5/5 5/5	10/10 10/10 10/10

Test atmosphere / Chamber* description more uniformly distribute the test atmosphere. The nose-only inhalation chamber

Gravimetric Conc. (mg/L):	0.052, 0.52, 2.02
Chamber Volume (L):	6.7
Total Airflow (L/min)	25.7
Temperature C	20-22°
Relative Humidity %	42-54

*for 3 concentrations

Particle size determination: Two samples withdrawn from the breathing zone of the animals were analyzed using an eight-stage Andersen cascade impactor to determine the particle size distribution of the test atmosphere.

A. Mortality: Pl see the following parageaph.

B. Clinical observations: At 0.052 mg/L all animals died within four days after exposure of the test material (0.052 mg/ml). Animals appeared healthy immediately following exposure. Then on day 1-3 there was abnormal respiration, hypoactivity/ facial staining. On day 4 all animals were found dead. At 0.52 All animals died within two days after exposure. Animals appeared health after immediate exposure, however, all animals were found dead on day 2. At 2.02 mg/L all animals died within one day after exposure. Three rats showed irregular respiration and three appeared hypoactive. All of the animals were dead on day 1.

C. Gross necropsy: The decedents in all three groups showed discoloration of liver, lungs, and intestines.

D. Reviewer's conclusions: The LC_{50} for males, females, and the combined sexes is less than 0.052 mg/L. This places the test material in EPA Toxicity Category I.

Reviewer: M. Hashim Date: November 4, 2010
Risk Manager EPA: 25

STUDY TYPE: Primary Eye Irritation Study in Rabbits ; OPPTS 870.2400

TEST MATERIAL: Helmquat 3SL (Paraquat dichloride monohydrate 42.8%), Batch #090564, dark green liquid pH 5.35

CITATION: Oley, S. D. 2010. Helmquat 3SL: Eye Irritation Study in Rabbits. Study Number 28290. Jan 27, 2010 Eurofins/Product Safety Laboratories, Dayton, New Jersey. . MRID 48122106

SPONSOR: Helm Agro US, Inc., Memphis, TN 39125

EXECUTIVE SUMMARY: In a primary eye irritation study (MRID 48122106), 0.1 mL of test material, Helmquat 3SL was instilled into the conjunctival sac of the right eye of 3 young adult female NZW rabbits (source:Robinson Services, Clemmons, NJ). The left eye of each animal served as the control. Eyes were scored for ocular irritation according to the Draize method 1, 24, 48, and 72 hours and through 21 days post instillation (Table 1).

There was no corneal opacity. There was iritis and conjunctivitis in all 3 animals one hour after the test substance instillation. One eye was positive for chemosis on day 21. The total mean score for the severity of irritation was 17.7. The product is severely irritating to the rabbit eye.

In this study, the test material is severely irritating. Helmquat 3SL is classified as EPA Toxicity Category I for primary eye irritation.

This study is classified as acceptable. It does satisfy the guideline requirements for a primary eye irritation study (OPPTS 870.2400; OECD 405) in the rabbit.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

RESULTS and DISCUSSION:

	Incidence of positive effects								
Lesion	Days 1	2	3	4	7	10	14	17	21
Corneal opacity	0/3	0/3	0/3	0/3	0/3	0/3	0/3	0/3	0/3
Iritis	3/3	3/3	1/3	1/3	1/3	1/3	1/3	0/3	0/3
Conjunctivitis	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	1/3
Severity of irritation Mean score	15.7	17.7	17.7	17.7	17.7	16.3	16.3	14.0	5.3

Note: Score of 2 or more required to be considered "positive"
Discharge does not indicate a positive effect according to the grading scale

A. Observations: There was iritis and conjunctivitis in all 3 animals one hour after the test substance instillation. One eye was positive for chemosis on day 21. There was no corneal opacity. The total mean score for the severity of irritation was 17.7. The product is severely irritating to the rabbit eye.

B. Results: Helmquat 3SL is severely irritating to the rabbit eye.

C. Reviewer's conclusions: In agreement with the study author, the test substance in severely irritating, it is classified in EPA Toxicity Category I for primary eye irritation.

Reviewer: M. Hashim Date: November 8, 2010

Risk Manager (EPA): 25

STUDY TYPE: Primary Skin Irritation Study in Rabbits: OPPTS 870.2500, OECD404

TEST MATERIAL: Helmquat 3SL (Paraquat dichloride monohydrate 42.8%), Batch #090564, dark green liquid pH 5.35

CITATION: Oley, S. D. 2010. Helmquat 3SL: Skin Irritation in Rabbits. Study Number 28291. Eurofins/Product Safety Laboratories, Dayton, New Jersey. Feb 2, 2010. MRID 48122107

SPONSOR: Helm Agro US, Inc., Memphis, TN 39125

EXECUTIVE SUMMARY: In a primary dermal irritation study (MRID 48122107), three young adult (2 m, 1 f) NZW rabbits (source: Robinson Services Clemmons, North Carolina) were dermally exposed to 0.5 mL of the test substance (Helmquat 3SL) for 4 hours. The doses were applied to intact, clipped, 6-cm^2 application sites on the trunk, using a 4-ply gauze pad secured with semi-occlusive 3-inch Micropore tape wrapped around the trunk. The animals were observed at 1, 24, 48, 72 hours, and 7 and 10 days following the patch removal. Irritation at the test sites was scored according to the Draize method.

All rabbits showed well defined erythema and very slight edema on the test sites within 24 hrs after patch removal. Erythema persisted for all three test sites and edema for one site through 14 days.

In this study Helmquat 3SL is moderately irritating. The test substance is classified as EPA Toxicity Category III for primary dermal irritation.

Primary Irritation Index is (PII) = 2.1

This study is classified as acceptable. It does satisfy the guideline requirements for a primary dermal irritation study (OPPTS 870.2500; OECD 404) in the rabbit.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

RESULTS and DISCUSSION:

Animal Number	Sex	Erythema/edema. Time after Patch removal						
		Up to I hr	24	48	72	Day 7	Day 10	Day 14
3501	Male	1/1	1/1	2/1	2/1	2/1	2/1	2/1
3502	Male	1/0	1/1	1/0	1/0	1/0	1/0	1/0
3503	Female	1/0	2/1	2/1	2/1	1/1	1/0	1/0
Total Mean Score		3/1 1.0/0.3	4/3 1.3/1.0	5/2 1.7/0.7	5/2 1.7/0.7	4/2 1.30/0.7	4/1 1.3/0.3	1.3/0.3 1.3/0.3

A. Observations: All rabbits showed well defined erythema and very slight edema on the test sites within 24 hrs after patch removal. Erythema persisted for all three test sites and edema for one site through 14 days.

B. Results: The Primary Irritation Index (PII) was 2.1

C. Reviewer's conclusions: The test article is classified as EPA toxicity category III for primary dermal irritation in rabbits, which is in agreement with the study author.

Reviewer: M. Hashim Date: November 8, 2010

Risk Manager (EPA): 25

STUDY TYPE: Dermal Sensitization – guinea pig; OPPTS 870.2600; OECD 406

TEST MATERIAL: Helmquat 3SL (Paraquat dichloride monohydrate 42.8%), Batch #090564, dark green liquid pH 5.35

CITATION: Oley, S. D. 2010. Helmquat 3SL. Dermal Sensitization Study in Guinea Pigs. Buehler method. Study Number 28292. Eurofins/Product Safety Laboratories, Dayton, New Jersey. Feb 2, 2010. MRID 48122108

SPONSOR: Helm Agro US, Inc., Memphis, TN 39125

EXECUTIVE SUMMARY: In a dermal sensitization study (MRID 48122108), 20 young adult male Hartley albino guinea pigs 370-469g, source: Elm Hill Breeding Labs, Chelmsford, MA) were tested with Helmquat 3SL using the Buehler method. The dorsal areas and flanks of 20 guinea pigs were clipped. Prescreening tests were performed on extra animals to assess the proper dose for induction and challenge. Inductions were applied to left side of each animal in a Hill chamber. For the first induction treatment , 0.4 mL of the undiluted test material (as received), for the second induction 75% of the test material (in dist. Water), and for the 3rd induction 25% of the test material in distilled water was used. Application was for six hours. The test sites were cleaned with tap water and dried with a clean paper towel. Twenty-seven days after the first induction, the animals were challenged with 0.4 mL of diluted test material (1% w/w in dist. water at HNIC) applied to a naive site on the right side of each animal for 6 hours. Reactions were scored 24, and 48 hours post application for induction and for challenge. A re-challenge was also performed with 0.7% and 0.9% w/w mixture of test substance in dist. water. These animals were examined after 24 and 48 hrs after the test .A naive group of 10 previously untreated males was treated at the first challenge and a naïve control group of 10 females was used at the rechallenge.

Five of the 20 animals on test died before the challenge.
Following the first challenge 3/15 induced animals and 3/10 naïve control animals showed a positive response. At rechallenge 1/15 induced and 2/10 controls showed a positive response to 0.9%; 0/15 previously induced and 0/10 naïve control animals showed a positive response to 0.7%.
The historical positive control test was appropriate.

Based on the results of this study, Helmquat 3SL is not a dermal sensitizer.

This study is classified as acceptable. It does satisfy the guideline requirements for a dermal sensitization study (OPPTS 870.2600; OECD 406) in the guinea pig.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

PROCEDURE:

A. Induction: The dorsal areas and flanks of 20 guinea pigs were clipped. Prescreening tests were performed on extra animals to assess the proper dose for induction and challenge. Inductions were applied to left side of each animal in a Hill chamber. For the first induction treatment , 0.4 mL of the undiluted test material (as received), for the second induction 75% of the test material (in dist. Water), and for the 3rd induction 25% of the test material in distilled water was used. Application was for six hours. The test sites were cleaned with tap water and dried with a clean paper towel.

B. Challenge: Twenty-seven days after the first induction, the animals were challenged with 0.4 mL of diluted test material (1% w/w in dist. water at HNIC) applied to a naive site on the right side of each animal for 6 hours. Reactions were scored 24, and 48 hours post application for induction and for challenge. A re-challenge was also performed with 0.7% and 0.9% w/w mixture of test substance in dist. water. These animals were examined after 24 and 48 hrs after the test. A naive group of 10 previously untreated males was treated at the first challenge and a naïve control group of 10 females was used at the rechallenge.

RESULTS and DISCUSSION:

Five of the 20 animals on test died before the challenge.
Following the first challenge 3/15 induced animals and 3/10 naïve control animals showed a apositive response. At rechallenge 1/15 induced and 2/10 controls showed a positive response to 0.9%; 0/15 previously induced and 0/10 naïve control animals showed a positive response to 0.7%.

Based on the results of this study, Helmquat 3SL is not a dermal sensitizer.

A. Positive control: The results of a positive control study using (HCA) alpha-Hexylcinnamaldehyde Technical were included in the study report. The study (#27592) was conducted within six months of the submitted main study and the results were appropriate.

B. Reviewer's conclusion: In agreement with the study author, the test substance is not a dermal sensitizer. It is noted that 5/20 animals died as a result of exposure to the test material during the induction period.

1. DP BARCODE: 381405
2. PC CODE: 061601
3. CURRENT DATE: Nov 18, 2010
4. TEST MATERIAL: 381404

Study/Species/Lab Study # / Date	MRID	Results	Tox. Cat.	Core Grade
Acute oral toxicity/rat Eurofins/Product Safety Laboratories Study # 28687/1-27-10	48122103	LD_{50} Females =1030 mg/kg bw	III	A
Acute dermal toxicity/rat Eurofins/Product Safety Laboratories Study #28288/1-27-10	48122104	LD_{50} Males > 5000 mg/kg bw LD_{50} Females > 5000 mg/kg bw LD_{50} Combined > 5000 mg/kg	IV	A
Acute inhalation toxicity/rat Eurofins/Product Safety Laboratories Study #28289/ 2-9-10	48122105	LC_{50} Males < 0.052 mg/L LC_{50} Females < 0.052 mg/L LC_{50} Combined < 0.052 mg/L	I	A
Primary eye irritation/rabbit Eurofins/Product Safety Laboratories Study #28290/ 1-27-10	48122106	Severe irritant to the rabbit eye	I	A
Primary skin irritation/ rabbit Eurofins/Product Safety Laboratories Study 28291/ 2-2-10	48122107	Moderately irritating PII= 2.1	III	A
Dermal sensitization/guinea pig Eurofins/Product Safety Laboratories Study #28292 / 2-2-10	48122108	Not a sensitizer	--	A

Core Grade Key: A = Acceptable, S = Supplementary, U = Unacceptable, W = Waived